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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/623,373

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Eric Aylaian

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EXAMINER

FICK, ANTHONY D

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/623,373		AYLAIAN, ERIC	
	Examiner		Art Unit	
	Anthony Fick		1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/26/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 through 7, 12 through 14, 26 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Gray (U.S. 6,870,089).

Gray discloses a system and apparatus for charging electronic devices using solar energy. The apparatus is shown in figure 3.

Regarding claim 1, figure 3 shows a solar collector comprising a plurality of substrates, each substrate having a photovoltaic cell formed on a first surface, the plurality including a first substrate, 304, and a second substrate, 305. Figure 3 further shows the first surfaces of the substrates are oriented at an angle relative to each other

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such that light reflected from the first substrate is reflected onto the first surface of the second substrate.

Regarding claims 2 and 3, claim 2 describes a property of the solar collector but does not add any new structure, and thus the structure of Gray that meets claim 1 also meets claim 2. Claim 3 is read to require the angle between the substrates is at least 20 degrees. Figure 3 shows an angle larger than 20 degrees between the substrates.

Regarding claim 4, figure 3 further shows the second substrate is also oriented to receive light and light reflected from the second substrate is reflected onto the first surface of the first substrate.

Regarding claims 5 and 7, figure 3 shows the substrates have edges proximal to each other and the apex of the angle between the substrates. The figure also shows the substrates have a second surface with the first surfaces being substantially planar and parallel to the second surfaces.

Regarding claim 6, Gray does not disclose the use of anti-reflective coating, therefore the surfaces are substantially absent an anti-reflective coating.

Regarding claim 12, figure 4 shows another embodiment with three substrates having a photovoltaic cell formed on the first surface, 401, 402 and 404, the substrates oriented at angles relative to each other such that light reflected off the first substrate, 401, is reflected onto the first surface of at least the second substrate, 402.

Regarding claim 13, figure 4 also shows substrates 401 and 402 having edges right next to each other and substrate 404 having an edge that is proximal to the edges of 401 and 402.

Regarding claim 26, figure 3 shows a solar collector comprising a plurality of substrates, each substrate having a photovoltaic cell formed on a first surface, the plurality including a first substrate, 304, and a second substrate, 305. Figure 3 further shows the first surfaces of the substrates are oriented at an angle relative to each other such that light reflected from the first substrate is reflected onto the first surface of the second substrate. Gray also discloses the use of an enclosure over the solar panels, solar panel cover, the cover selectively allowing UV light to pass through, thus concentrating the UV light that hits the solar cells (column 6, paragraph 4).

Regarding claim 27, Gray further describes the enclosure having inner wall surfaces that reflect light back onto the solar cells to improve the efficiency of the device (column 7, top paragraph).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8 through 10 and 23 through 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray as applied to claims 1 through 7, 12 through 14, 26 and 27 above, and further in view of King et al. (U.S. 6,586,669).

The disclosure of Gray is as stated above for claims 1 through 7, 12 through 14, 26 and 27.

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The difference between Gray and the claims is the requirement of specific photovoltaic cells.

King teaches different tandem solar cells with improved characteristics. A monolithic cell of King includes multiple junctions comprising a GaInP solar cell, a GaAsSb solar cell, and Ge solar cell (column 4, paragraph 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the multi-junction monolithic cell of King within the apparatus of Gray because the cells of King use multiple layers to improve the output of the device by absorbing different parts of the energy distribution in sunlight (King column 1, paragraph 3) and the cells of King eliminate or reduce the sources of non-ideal losses and bring the device performance closer to theoretical limits (King column 2, paragraph 1). Because King and Gray are both concerned with solar cells, one would have a reasonable expectation of success from the combination.

Regarding claims 8 and 23, the solar cells of King are monolithic tandem cells and thus the combination meets the claims.

Regarding claims 9 and 24, the solar cells of King comprise a Ge based solar cell, a GaInP based solar cell and a GaAs based solar cell and thus the combination meets the claims.

Regarding claims 10 and 25, the solar cells of King are multiple-junction solar cells, thus the combination meets the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Fick whose telephone number is (571) 272-6393. The examiner can normally be reached on Monday thru Friday 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anthony Fick *ADF*
AU 1753
October 2, 2006


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